

- iii) detecting MR signals from the sample and utilising spectral-spatial excitation, in combination with line scanning, point scanning and/or steady state imaging techniques; and
- iv) optionally generating an image, physiological data or metabolic data from the detected signals.

### **Brief Description of the Drawings**

Figure 1 is an example of a pulse sequence used in the first aspect of the present invention (according to claim 1);

Figure 2 is an outline of LS pulse sequence;

Figure 3 is an outline of a PS pulse sequence;

Figures 4 and 5 illustrate how a 16 x 16 matrix (black grid) may be placed to collect the  $^1\text{H}$ -spectrum from ROI's (white ellipses);

Figures 6A-B show phantom objects in the PS method;

Figures 7A-C show the results from simulations using both LS and GE sequences;

Figures 8A-C show the results from simulations using both PS and CSI sequences; and

Figures 9a-d show the results of simulations of experiments with hyperpolarised agents.

### **Detailed Description of the Preferred Embodiments of the Invention—**

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